

# *The African Organisation for Standardisation*

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ARS 837 (2012) (English): Fresh cassava  
leaves -- Specification



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**Fresh cassava leaves — Specification**



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## Foreword

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## Introduction

Nutritionally, the cassava leaf is rich in protein (14-40%), potassium, iron, calcium, sodium, vitamin A, vitamin B<sub>1</sub>, B<sub>2</sub>, B<sub>6</sub>, C and carotenes. It has been reported that apart from lower methionine, lysine, and perhaps isoleucine content, the amino acid profile of cassava leaf proteins compares favorably with those of milk, cheese, soybean, fish, egg.

The advantage of using young cassava leaves in the diet are:

- (i) Cassava is able to produce high yields in infertile soils, so it is available for farmers in remote and marginal areas;
- (ii) It has a high content of protein, iron, potassium, calcium, sodium, vitamin A, vitamin B<sub>1</sub>, B<sub>2</sub>, B<sub>6</sub>, C and carotenes compared to other vegetables;
- (iii) It can be grown in small areas for daily supply; and
- (iv) It can also be grown commercially for income generation.





## Fresh cassava leaves — Specification

### 1 Scope

This African Standard specifies the requirements and methods of sampling and test for fresh cassava leaves of *Manihot esculenta* Crantz, for preparation before human consumption.

### 2 Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ARS 53, *General principles of food hygiene — Code of practice*

ARS 56, *Prepackaged foods — Labelling*

WD-ARS 844:2012, *Cassava and cassava products — Determination of total cyanogens — Enzymatic assay method*

CAC/GL 21, *Principles for the establishment and application of microbiological criteria for foods*

CAC/RCP 44, *Recommended international code of practice for the packaging and transport of tropical fresh fruits and vegetables*

CAC/RCP 53, *Code of hygienic practice for fresh fruits and vegetables*

CODEX STAN 193, *Codex general standard for contaminants and toxins in food and feed*

ISO 874, *Fresh fruits and vegetables — Sampling*

ISO 7563, *Fresh fruits and vegetable — Vocabulary*

### 3 Definitions

For the purposes of this standard, the terms and definitions in ISO 7563, and the following terms and definitions apply.

#### 3.1

##### **fresh cassava leaves**

leaves obtained from a plant of the species *Manihot esculenta* Crantz having visual characteristics of colour, texture and firmness typical of just harvested cassava leaves at the time of sale

#### 3.2

##### **sound/wholesome**

free from disease and physiological deterioration (such as but not limited to decay, breakdown, freezing damage) or adulteration/contamination, that appreciably affects their appearance, edibility, the keeping quality of the produce or market value

#### 3.3

##### **clean**

practically free from dirt or staining and practically no loose dirt or other foreign matter present on the product and in the packaging material

## 3.4

### **practically free**

product without defects in excess of those that can be expected to result from, and be consistent with good cultural and handling practices employed in the production and marketing of the fresh cassava leaves

## 3.5

### **food grade material**

one that will not transfer non-food chemicals into the food and contains no chemicals which would be hazardous to human health

## 3.6

### **extraneous matter**

organic matter of plant origin other than fresh cassava leaves

## 3.7

### **foreign matter**

organic and inorganic materials (such as sand, soil, glass) other than extraneous matter in the cassava leaves

## 4 Provisions concerning quality

### 4.1 Minimum requirements

#### 4.1.1 Fresh cassava leaves supplied to the market shall be:

- a) intact;
- b) tender;
- c) fresh in appearance and turgescence;
- d) sound/wholesome; produce affected by rotting or deterioration such as to make it unfit for consumption is excluded
- e) clean, practically free of any visible foreign matter; however, unwashed leaves (if indicated) may have traces of earth or other growing material
- f) free of damage caused by unsuitable washing or soaking;
- g) practically free from pests;
- h) practically free from damage caused by pests;
- i) free of abnormal external moisture
- j) practically free of any visible foreign and extraneous matter; and
- k) free of any foreign smell, odour and/or taste.

#### 4.1.2 The development and condition of the cassava leaves vegetables must be such as to enable them:

- a) to withstand transportation and handling
- b) to arrive in satisfactory condition at the place of destination.

## 5 Provisions concerning sizing

There is no sizing requirement for cassava leaves.

## 6 Provisions concerning tolerances

A total tolerance of 10 per cent, by weight, of cassava leaves not satisfying the minimum requirements is allowed. Within this tolerance not more than 2 per cent in total may consist of produce affected by decay.

## 7 Provisions concerning presentation

### 7.1 Uniformity

The contents of each package must be uniform and contain only cassava leaves of the same origin, variety or commercial type and quality.

The visible part of the contents of the package must be representative of the entire contents.

### 7.2 Packaging

**7.2.1** Fresh cassava leaves may be sold packaged or loose. Packaged cassava leaves shall be packed in such a way as to protect the produce properly. The materials used inside the package must be new<sup>1</sup>, clean, and of a quality such as to avoid causing any external or internal damage to the produce and safeguard the hygienic, nutritional, and organoleptic qualities of the produce.

**7.2.2** In order to maintain produce quality during transportation and marketing, fresh cassava leaves shall be packaged and transported in accordance with the appropriate sections CAC/RCP 44.

**7.2.3** The net weight of each package of fresh cassava leaves may be required to meet the regulations of the destination country.

#### 7.2.1 Description of containers

The containers shall meet the quality, hygiene, ventilation and resistance characteristics to ensure suitable handling, shipping and preserving of the fresh cassava leaves. Packages must be free of all foreign matter and smell.

### 7.3 Presentation

Fresh cassava leaves may be presented in one of the following forms:

- a) bundles firmly bound where stalks on the outside of each bundle correspond in appearance. Bundles shall be arranged evenly in the package, each bundle may be protected by paper. In any one package, bundles shall be of the same length;
- b) arranged, but not bundled in the package;
- c) prepackaged units placed in another package; and
- d) macerated and packed.

## 8 Marking or labelling

### 8.1 Consumer packages

**8.1.1** In addition to the requirements of ARS 56, the following specific requirements shall apply and shall be **legibly** and **indelibly** marked:

<sup>1</sup> For the purposes of this Standard, this includes recycled material of food-grade quality.

- a) name of the produce to be shown on the label shall be “Fresh cassava leaves”;
- b) name and location address of the vendor and/or packer shall be declared;
- c) country of origin of the produce, and optionally, place of origin such as district, or region;
- d) net weight (in metric system);
- e) lot identification (batch number);
- f) declaration of preservatives, if used;
- g) date of harvest;
- h) packing date;
- i) storage conditions; and
- j) name of variety.

### 8.2 Non-retain containers

Each package must bear the following particulars, in letters grouped on the same side, legibly and indelibly marked, and visible from the outside, or in the documents accompanying the shipment.

#### 8.2.1 Identification

Name and address of exporter, packer and/or dispatcher. Identification code (optional).<sup>2</sup>

#### 8.2.2 Nature of Produce

Name of the produce if the contents are not visible from the outside. Name of the variety and/or commercial type (optional).

#### 8.2.3 Origin of produce

Country of origin and, optionally, district where grown or national, regional or local place name.

#### 8.2.4 Commercial Identification

— Net weight

— Preparation instructions in accordance with 8.3.

#### 8.2.5 Official Inspection Mark (optional)

### 8.3 Preparation of cassava leaves before consumption

A statement on preparation instructions indicating the following is required:

- a) Fresh cassava leaves shall not be eaten raw; and
- a) Cooking or rinsing water shall not be consumed or used for other food preparation purposes.

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<sup>2</sup> The national legislation of a number of countries requires the explicit declaration of the name and address. However, in the case where a code mark is used, the reference “packer and/or dispatcher (or equivalent abbreviations)” has to be indicated in close connection with the code mark.

## **9 Contaminants**

### **9.1 Pesticide residues**

Fresh cassava leaves shall conform to those maximum residue limits for pesticide residues established by Codex Alimentarius Commission for this commodity.

### **9.2 Heavy metals**

Fresh cassava leaves shall comply with those maximum levels for heavy metal contaminants established by the Codex Alimentarius Commission for this commodity.

### **9.3 Other contaminants**

**9.3.1** Fresh cassava leaves shall conform to those maximum levels of the Codex General Standard for Contaminants and Toxins in Food and Feed (CODEX STAN 193).

## **10 Hygiene**

**10.1** The produce covered by the provisions of this standard shall be prepared and handled in accordance with the appropriate sections of ARS 53 and CAC/RCP 53.

**10.2** The produce shall comply with any microbiological criteria established in accordance with the CAC/GL 21.

## **11 Sampling and test**

Sampling shall be done in accordance with ISO 874. Tests for pesticide residues, contaminants and toxins shall be conducted in accordance with the recommended methods of the Codex Alimentarius Commission.

## **12 Criteria for conformity**

A lot shall be declared as conforming to this standard if samples inspected or analysed for quality requirements conform to the provisions of this standard.

**Annex A**  
(informative)

**Bibliography**

UNECE FFV 58-2010, *Leafy vegetables*

EAS 780:2012, *Fresh cassava leaves — Specification*



**Cassava leaves on sale**



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